CML

the PBS archive add on for Material Ledger Documents

Manual Part B

- Administration -

Compatible with

- SAP ERP 5.0

SAP® Certified
Powered by SAP NetWeaver®

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Introduction to the PBS ILM Concept

Information Lifecycle Management

Information Lifecycle Management (ILM) means the administration of information related to the time when it is used, taking into account its total costs and compliance. A conclusive, efficient ILM concept must, as a result, control data growth, manage retention rules, and also ensure compliant data storage. Furthermore, an easy access to archived data is decisive and, for example, its transfer during internal and external audits.

PBS ILM Concept

PBS software provides existing SAP customers extensive solutions to put into practice the requirements that were described above for a stringent and successful ILM concept. PBS is considered as an expert for complex, integrated data accesses to archived and database data and meanwhile, also to data that is located on decommissioned SAP systems. In addition to classical SAP data archiving, SAP BI-specific nearline storage is also supported.

PBS archive add ons®

PBS archive add ons always rely on SAP archiving having been carried out successfully. This is the basis for a permanently high-performing SAP system. In principle, you can indeed retain posted documents in the SAP database for a very long time due to a large database capacity. Depending on the document volume, this may result, however, in massive performance losses and, sooner or later, heavily increasing operation costs. The daily backup becomes difficult for large data stocks, for example.

A convenient display and evaluation of archived transaction data – as the SAP user is used to for database data – can often only be carried out in a very restricted manner using SAP standard means depending on the application module. This is particularly the case for large archive data stocks. The PBS archive add ons can be used here. They can be provided for nearly all SAP modules and release levels, and start with a "C" (for Complete) in their description. For example, PBS archive add on CCOPA for the SAP module COPA.

Using the PBS archive add ons you can quickly and easily access your archived data even after data archiving during your day-to-day business. The unrestricted data access is realized by an intelligent indexing concept. It extends the SAP archive infrastructure components and integrates itself optimally with SAP archiving. Archive data that has been indexed can still be provided after a release upgrade immediately, without restrictions, and without migration effort. The PBS archive index is stored in sequential files of the SAP file system in the same way as the SAP archive data. Afterwards, you can access the archive data online via the familiar transactions. The SAP user can display the data from the SAP database and the

archive data simultaneously via the PBS archive add on index. For the user, it seems as though the archived data is still in the SAP database.

The deep integration of the PBS transactions also enables direct navigation to subsequent and previous documents both within the indexed SAP module as well as to linked documents from other SAP modules. This applies not only for resident but also without restrictions for archived data. The benefit for the user increases the more PBS archive add ons are used.

The potential benefits of the ILM concept raises substantially if you take into account the savings that result from the SAP mirror systems. There are usually at least two of them meaning that the saved disk storage can be tripled by performing data archiving. Thus, time is saved for the data backup.

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1. Introduction

The ***PBS archive add ons*** are constructed in modular form and cover the application modules FI, SD, MM, CO etc. with a special program package for exactly this application. You can easily see from the name which *PBS archive add on* belongs to which SAP module: CFI, CSD, CMM, CCO etc. All *PBS archive add ons* have in common that they can be easily installed in the SAP R/3 system via the SAP transport utilities **"tp"** and “SAINT”. For installation details of the *PBS archive add ons* please see the specific installation manual (manual part A).

This administration manual was written to make construction and administration of the *PBS archive add on CML* as easy as possible. At first, data archiving with transaction SARA is discussed; the second topic is the PBS index construction from the SAP archive files.

The modular user manual of each *PBS archive add on* is composed of partial manuals:

- Part A: Installation
- Part B: Administration, Archive Construction and Maintenance
- Part C: Application Programs / Transactions
- Part D: Migration Support R/2 => R/3 (if available)

There are additional manuals for the PBS utilities: Conversion Tool, Archive Browser, Translation Tool.

Should you have questions regarding the installation of the *PBS archive add ons* or if you have problems when installing the software please call directly the **Service Hotline of PBS Software GmbH**:

Phone: +49 - 6251 - 174 110
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Release Compatibility

The ***PBS archive add on CML*** discussed in this manual runs with the basis programs of SAP AG, D-69190 Walldorf/Baden, **Release ERP 5.0**.

2. Overview on the PBS archive add on CML

2.1. Supplied Menus

A global menu is supplied with the *PBS archive add on CML* for all products and utilities of PBS Software GmbH as well as a special menu for the *PBS archive add on CML*. Up to release 4.5 this menu can be started via the transaction /PBS/PBS. All programs described in this manual and the user transactions are contained in the menu. From release 4.6 the navigation has completely changed due to the implementation of the SAP Easy Access technique. This has also had an effect on the transactions in the environment of the *PBS archive add ons*.

The *PBS archive add on CML* contains area menus /PBS/PBS (main menu of the PBS modules) and /PBS/CML (functions for the *PBS archive add on CML*). From these menus, you now have to generate activity groups (4.6B) or roles (from 4.6C) respectively, which can then be integrated into the user master. You can also create an activity group/role directly from the Easy Access menu.

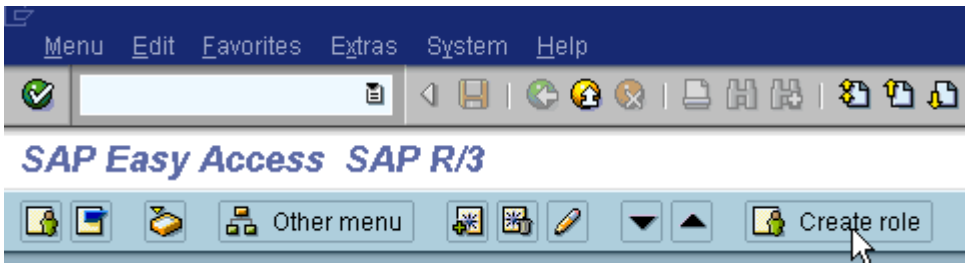

Diagram 1: Creating your own role

You can freely define the name of the activity group/role; the name can also be within the PBS namespace. A PBS area menu is then transferred by pressing the function key **'Transfer menus from area menus'** by indicating the corresponding PBS menu name. During the transfer, the system query for the explosion of the area menu should be answered with 'yes'.

The role/activity group created in this way can now be integrated in the corresponding user master. We recommend that you assign the global activity group/role /PBS/PBS to administrators and the special function menu /PBS/CML to the end users.

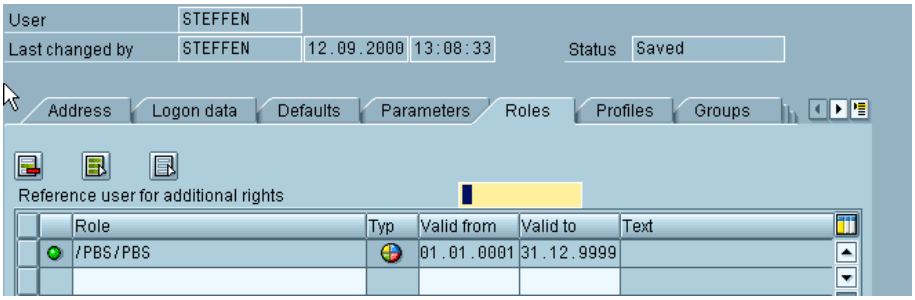

Diagram 2: Assigning the role in the user profile

2.2. Basic Information about the PBS archive add on CML

The *PBS archive add on CML for Material Ledger Documents* is a package of ABAP/4 programs which enables the comfortable and performant display and evaluation of archived material ledger documents in the R/3 online system. All transactions displaying archived data are based on the SAP transactions. This guarantees that the users can work immediately with the archive transactions without special training.

The administrative task of the *PBS archive add on* is to construct and activate the PBS archive and, in the event of problems, to analyze the archive with the tools that are shipped together with the software.

The construction and use of the *PBS archive add on CML* always requires successful data archiving with SAP means and access to the archive file created in this way. From 4.0B, this access can also be realized with "Archive Link" via an optical archive system. In each case, the status of the archive file must be ”Accessible“.

The *PBS archive add on CML* uses the archiving runs of the archiving object:

CO_ML_BEL Material ledger docs (MLHD/IT/PP/PPF/CR/CRF/CRP)

The SAP archiving program is carried out with transaction SARA. Standard archiving is not described in this manual.

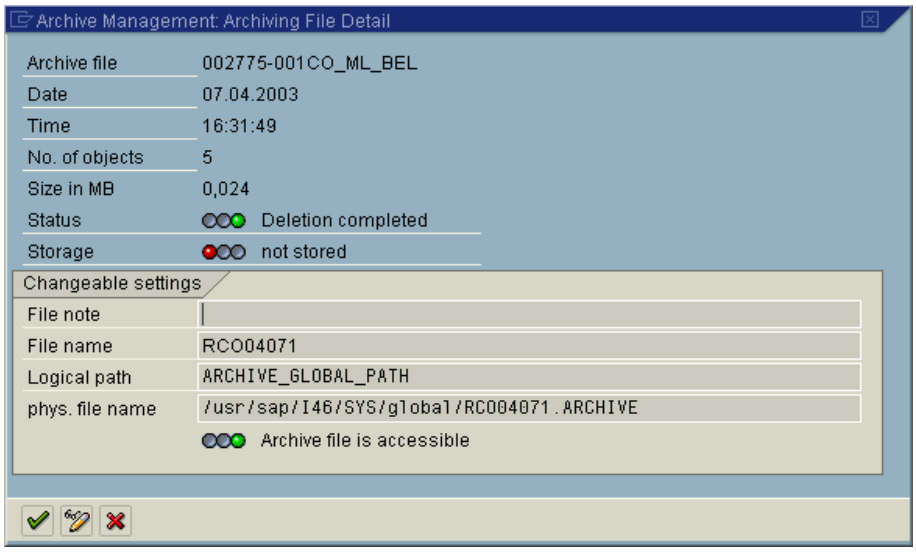

Diagram 3: Status of an archiving file

You can determine the status of the archive files for the various archiving runs via transaction SARA (see Diagram 3). In order to display material ledger documents correctly and during reporting via the *PBS archive add on CML*, the deletion run of the SAP archiving must have been performed successfully.

The generated SAP archiving runs are read and written into the file system of the *PBS archive add on CML* by the PBS indexing program (see installation manual). During this process, secondary indices are created in the file system to enable efficient access. If a PBS archive with indices already exists, the indexing program merges these indices with the new indices for the SAP archive.

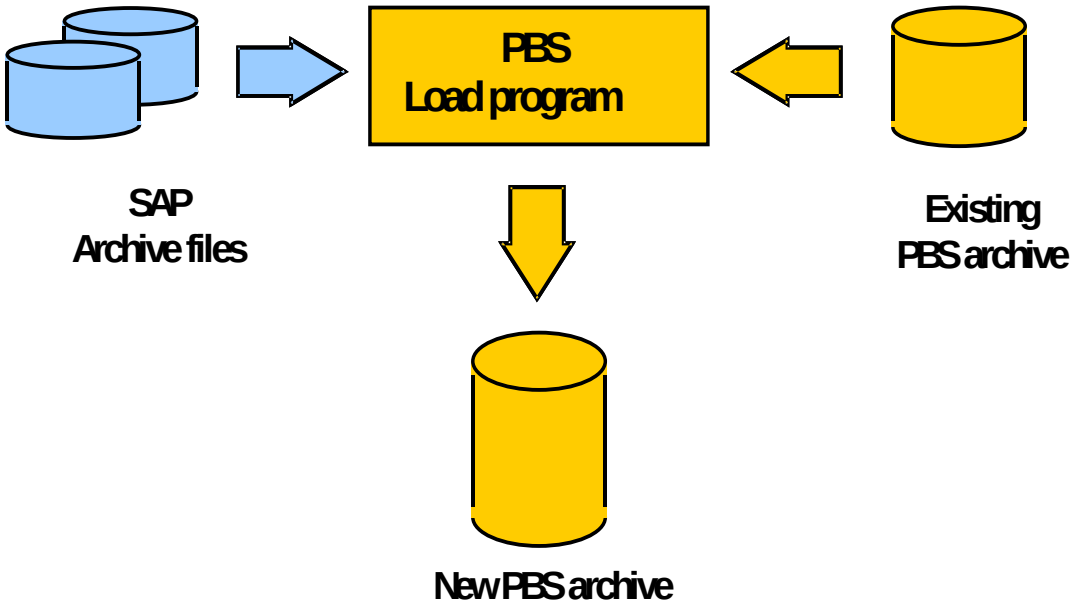

Diagram 4: Construction of the PBS archive add on

Once the PBS archive has been constructed, it still has to be activated in the R/3 system. To do this, please run transaction /PBS/CMLA. The master data of the material ledger documents of the *PBS archive add on CML* can now be displayed with the display transactions.

Chapter 3 of this manual describes the programs for the construction and activation of the *PBS archive add on CML.*

3. Construction of the PBS archive add on CML

3.1. Procedure

To archive material ledger documents, first use the SAP archiving tool to remove the data from the R/3 database. Call up the tool via transaction SARA. The archiving is made object-oriented. **CO_ML_BEL** is the archiving object for the material ledger documents.

You must create a variant before archiving. By doing this, the amount of the data to be archived and various options for the archiving process are determined.

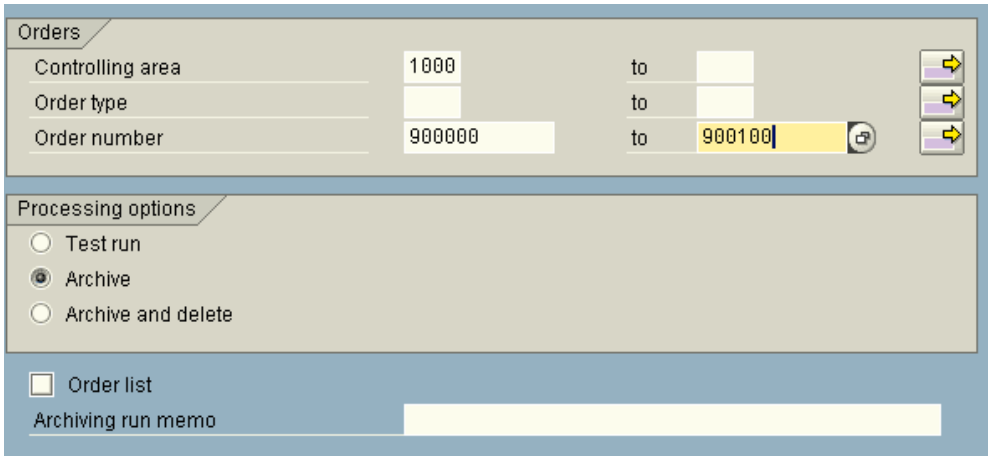

Diagram 5: Maintenance of the archiving job variant

The archived data is written to sequential files outside the database by the SAP archiving program.

The reorganized data can no longer be displayed easily using the standard transactions. The degree to which the load on the R/3 database is reduced can be measured using the PBS Database Analyzer.

The SAP archives that are created can be written to the *PBS archive add on CML* using the PBS indexing program (transaction /PBS/CMLL). The indexing program reads the SAP archive files, creates secondary indices and stores this data in compressed form on magnetic disks outside the database.

In this way, the archived material ledger documents are available for online processing and can be evaluated easily using the PBS transactions. The PBS transactions correspond to the functionality of the SAP transactions. However, they can read and display the resident data in the R/3 database as well as the archived data from the *PBS archive add on CML.*

As the data in the *PBS archive add on CML* is no longer changed, a regular data backup of the archive is not necessary. The SAP archive file that is created during the next reorganization of the database can be added to the existing *PBS archive add on CML* using the indexing program.

3.2. The Administration Board

The PBS Administration Board is the central administration instrument for the indices that are generated via the ADK technique and that were stored in so-called archiving runs (index areas). Administration and archive data indexing can be executed centrally from an interface in the Administration Board. You can call it directly using the transaction /PBS/CML_ABO.

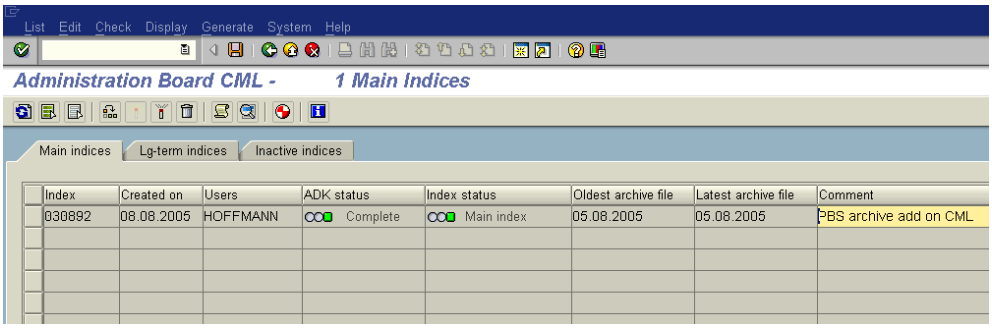

Diagram 6: Administration Board CML

Description of the individual icons:

You can use this function to convert the main index into a long-term index.

By activating an index area, the indices are made available for the user. Only deactivated index areas can be activated.

Deactivation of an index area means that these indices are no longer available to the user.

The deletion of an index area results in all dependent table contents and physical files being deleted.

The log of an index area is displayed.

Start of the archive tool.

The indexing program is started.

3.3. Indexing program

The *PBS archive add on CML* enables archived material ledger documents from R/3 to remain available for online processing. To do this, construct the *PBS archive add on CML* for the SAP archive files using the indexing program (transaction /PBS/CMLL). The selection screen of the indexing program with its delimitations is displayed below.

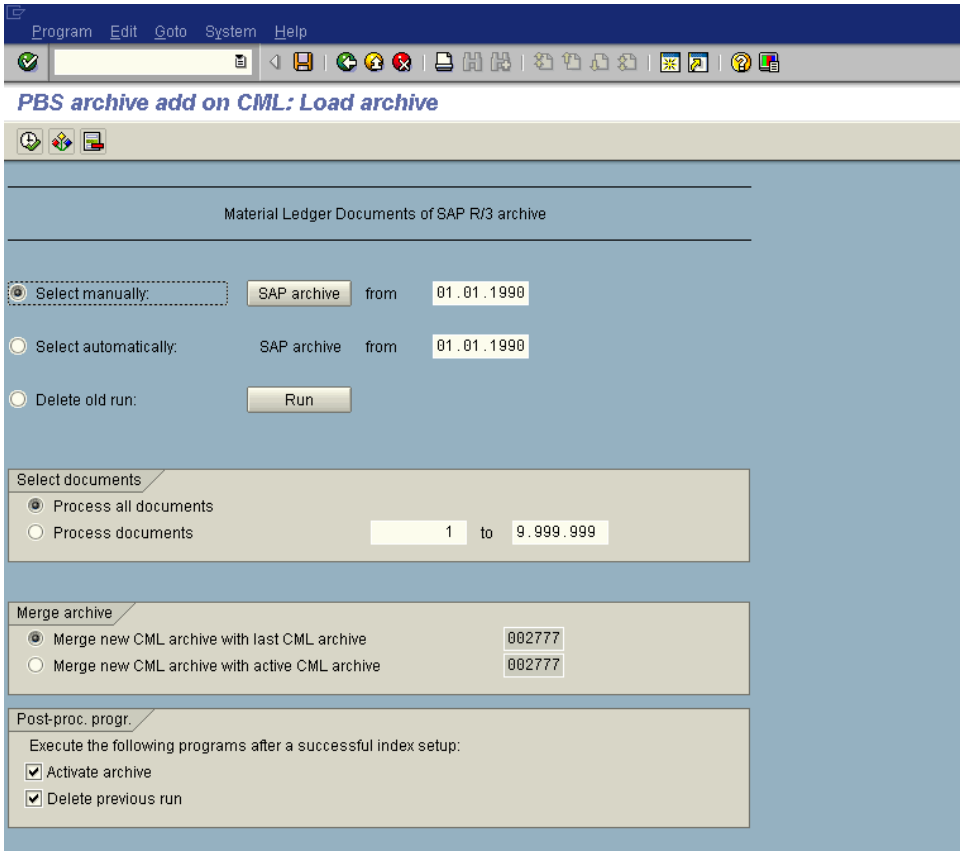

Diagram 7: Selection screen of the indexing program

Parameters

◉ Select manually:

With this option the SAP archive files that are currently available can be selected by pressing the button “SAP archive”.

◉ **Select automatically:**

If this option is selected, all available SAP archive files that were created after the date indicated are processed automatically.

◉ **Delete old run:**

With the help of this option, a list of the SAP archive files that are currently stored in the *PBS archive add on CML* is displayed after pressing the button “Run”. In this list, the runs that are to be deleted from the *PBS archive add on CML* can be selected.

◉ **Process all documents**

If this option is selected, the SAP archive files that are selected automatically or manually are completely processed.

◉ **Process documents: 1 to 999999999**

This option enables you to process **exactly one manually selected SAP archive file** in several runs. All material ledger documents of the selected SAP archive file are “counted”.

◉ **Merge new CML archive with last CML archive**

If this option is selected, the new CML archive will be merged with the **last** CML archive. The last archive will be defined with table ADMI_RUN.

◉ **Merge new CML archive with active CML archive**

With this option the new CML archive will be merged with the currently **active** CML archive. You can activate an archive with transaction /PBS/CMLA.

☐ **Index activation**

This parameter then activates the indexing process of the archive. If you want to carry out various indexing processes one after another, this parameter should be set only during the last process. If this parameter was not set, you can separately activate the archive via transaction /PBS/CMLA at any time.

☐ **Delete previous run**

If you set this parameter, the data from the previous run will be deleted after the current indexing run has been successfully completed. It often makes sense in the introductory period that this parameter is not set and that the previous run is kept. Older runs can be deleted separately via transaction /PBS/CMLD at a later date.

3.4. Initial Indexing Process (Initial Construction)

If all necessary entries were made in the selection screen of the indexing program, the selection screen can be stored as a selection variant for the initial construction of the *PBS archive add on CML* and the program can be started as a background process.

Important:
The *PBS archive add on CML* has to be constructed for each client.

During run time, the program generates the *PBS archive add on CML* from the archive files. When doing this, secondary indices are created from the material ledger documents from the SAP archive. The first run will not be merged.

Important:
It is recommended to perform a data backup of the created files after each construction of the *PBS archive add on CML*, but basically this is not mandatory since the indexing program can be restarted.

Job protocol:

After each run of the indexing program a statistical report is generated, which can look as follows. This statistic is also stored in the *PBS archive add on CML* and can be displayed later using the transaction /PBS/CMLS.

```
P R O T O C O L    L O A D   P R O G R A M

SAP archive files read (acquisition).......:                    1
- 012328-001CO_ML_BEL
Records read (acquisition).....................:              113
PBS archive files read (stock).................:                0
Records read (stock)...........................:                0

Tables                                          read       processed
-------------------------------------------------------------------------------
 CKMLCT                                          15                0
 MLCR                                            30                0
 MLCRF                                           15                0
 MLCRP                                           27                0
 MLHD                                             5                5
 MLIT                                             6                6
 MLPP                                            10                0
 MLPPF                                            5                0
-------------------------------------------------------------------------------
Total                                           113               11

Index                                           written from acquisition
-------------------------------------------------------------------------------
 HD0                                                               5
 HD1                                                               1
 IT0                                                               5
 IT1                                                               5
 IT2                                                               6
-------------------------------------------------------------------------------
Total                                                             22

Index                                                    written total
-------------------------------------------------------------------------------
 HD0                                                               5
 HD1                                                               1
 IT0                                                               5
 IT1                                                               5
 IT2                                                               6
-------------------------------------------------------------------------------
Total                                                             22


Index table                                             written total
-------------------------------------------------------------------------------
 HD0                                                               1
 HD1                                                               1
 IT0                                                               1
 IT1                                                               1
 IT2                                                               1
-------------------------------------------------------------------------------
Total                                                              5



     Indexing run of PBS archive add on™ CML finished successfully!
```

Diagram 8: Document statistic of the indexing program

3.5. Activate Index

After the *PBS archive add on CML* has been constructed using the indexing program, the administration table has to be loaded into the SAP R/3 system. By doing this, the *PBS archive add on CML* is activated. The transaction /PBS/CMLA can be used to update the corresponding administration table. The request screen of the report is displayed as follows.

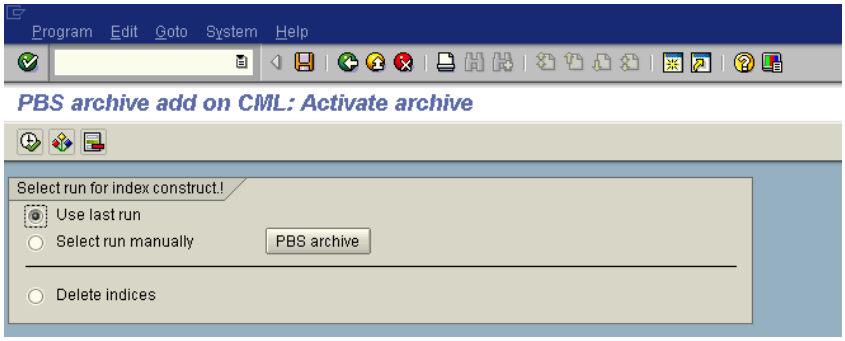

Diagram 9: Request screen of the transaction /PBS/CMLA

◉ Activate last run

If you set this parameter, the last indexing run is activated as main archive.

◉ Select run manually

Especially in the introductory and test phase it can be useful not to delete older indexing runs but instead to keep them for a while. You can activate an earlier run at any time with this parameter.

◉ Delete indices

You can "switch off" the main archive with this parameter. Then you can activate the archive again at any time.

All further parameters are in connection with the creation of secondary archives and are described in detail in chapter 3.7.

3.6. Further Indexing Processes (Merge Runs)

After the initial indexing process, a *PBS archive add on CML* already exists from the last run. If the next SAP archive with material ledger documents is to be added, this is done as described previously (initial construction).

You can select the CML archive to merge the new run in the selection screen. The option 'Merge new CML archive with last CML archive' has the advantage that you do not have to activate the archive between two indexing processes.

Start the indexing program again as a batch process. A new CML archive is constructed from the selected CML archive and the selected CO_ML_BEL archives (access). The new CML archive contains the indices from the stock and the newly generated indices. After a successful merge run the old CML archive (stock) can be deleted. For this purpose, use the option "Delete previous run" in the selection screen of the indexing program or the transaction /PBS/CMLD.

After a merge run the selection statistic could be as follows:

```
P R O T O C O L   L O A D   P R O G R A M
-------------------------------------------------------------------------------

SAP archive files read (acquisition).......:                              2
- 012388-001CO_ML_BEL
- 012391-001CO_ML_BEL
Records read (acquisition).....................:                        226
PBS archive files read (stock).................:                          1
- 012406-001/PBS/CML
Records read (stock)...........................:                         22

Tables                                          read      processed
-------------------------------------------------------------------------------
 CKMLCT                                          30              0
 MLCR                                            60              0
 MLCRF                                           30              0
 MLCRP                                           54              0
 MLHD                                            10             10
 MLIT                                            12             12
 MLPP                                            20              0
 MLPPF                                           10              0
-------------------------------------------------------------------------------
Total                                           226             22

Index                                  written from acquisition
-------------------------------------------------------------------------------
 HD0                                                           10
 HD1                                                            2
 IT0                                                           10
 IT1                                                           10
 IT2                                                           12
-------------------------------------------------------------------------------
Total                                                          44
```

```
Index                                                read from stock
-------------------------------------------------------------------------------
 HD0                                                              5
 HD1                                                              1
 IT0                                                              5
 IT1                                                              5
 IT2                                                              6
-------------------------------------------------------------------------------
Total                                                             5

Index                                              written from stock
-------------------------------------------------------------------------------
 HD0                                                              5
 HD1                                                              1
 IT0                                                              5
 IT1                                                              5
 IT2                                                              6
-------------------------------------------------------------------------------
Total                                                            22

Index                                                   written total
-------------------------------------------------------------------------------
 HD0                                                             15
 HD1                                                              3
 IT0                                                             15
 IT1                                                             15
 IT2                                                             18
-------------------------------------------------------------------------------
Total                                                            66

Index table                                           written total
-------------------------------------------------------------------------------
 HD0                                                              1
 HD1                                                              1
 IT0                                                              1
 IT1                                                              1
 IT2                                                              1
-------------------------------------------------------------------------------
Total                                                             5

Indexing run of PBS archive add on™ CML finished successfully!
```

Diagram 10: Document statistic of the indexing program

Note:

If the indexing process terminates with the message ABAP/4 run time error

SYSTEM_NO_MORE_PAGING or **EXTRACT_NO_MORE_PAGING**

this is due to the SAP paging file being too small.

What should be done?

1. You can obtain an overview of the roll and paging memory occupancy by the active users and their transactions via transaction SM04, Goto -> Memory. Try to clarify whether there is another program and not the current program that requires so much memory. The transaction ST02 also displays the memory capacity.

2. Check the two parameters **'rdisp/ROLL_MAXFS'** and **'rdisp/PG_MAXFS'** with the transaction RZ11 in the current instance profile. These values indicate the current block sizes for the roll or paging area (1 block = 8 kilobytes, 1 kilobyte = 1024 bytes).

3. Compare the size of the common partition in the system for the roll and paging area with the values from transaction RZ11. If the converted value does not reach the size of the partition, the parameters '**rdisp/ROLL_MAXFS**' and '**rdisp/PG_MAXFS**' have to be adjusted according to the value of the provided partition.

4. Restart your system.

If the parameter has been modified, repeat the run after reloading the backup of the *PBS archive add on CML*.

In addition, we refer you to the **SAP correction no. 14779** which provides more information about the error described above.

3.7. Creation of Secondary Archives

The runtime of the index generation program increases with an increasing number of documents in the PBS archive. If the runtime has reached an unbearable level (for example, more than 15 hours) it is possible to transform the active main archive into a so-called secondary archive with the transaction /PBS/CMLA. For this, use option "Transform into secondary archive".

You can start with the creation of a new main archive without merging in the next indexing run. When creating the new main archive a CML archive is created without merging as in the first indexing run. When creating new CML archives with the indexing program, it is only checked if the selected SAP archive files have already been processed with the active main archive. It is not checked if the SAP archive files are already available in a secondary archive. The administrator should make sure that SAP archives are not processed several times. Particular care should be taken during the automatic selection of the SAP archives.

All CML archives can be used as secondary archives. It is not checked if the archives are disjunct during the creation of a secondary archive.

The current main archive and all active secondary archives are always considered during the read access. As the PBS archives are stored in ADK format, you have the possibility to remove all older secondary archives, which are accessed less frequently, from storage into an optical archive.

3.8. Archive Tool

The transaction /PBS/CMLS is available for the administration of the *PBS archive add on CML*.

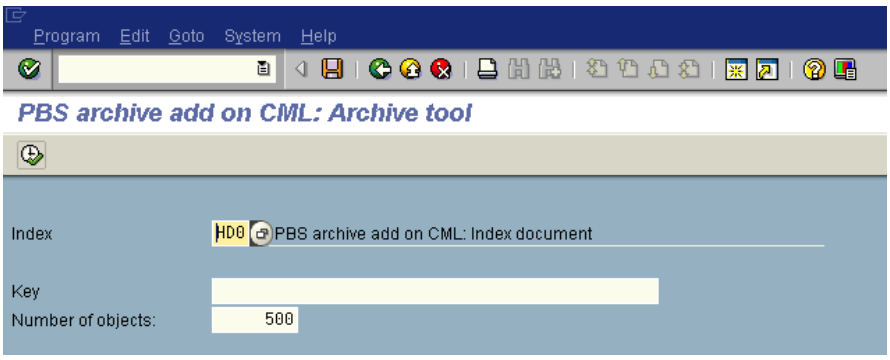

Diagram 11: Selection screen of the transaction /PBS/CMLS

With the help of this transaction the secondary indices can be displayed directly from the *PBS archive add on CML.* To do this, insert the required secondary index in the field 'Index' of the selection screen. The field has an F4 selection help. Therefore, you can select a table and an index from the archive without a problem.

After starting the transaction using the PF8 key, a basic list of the objects of the secondary index is displayed. The indices for the object can be displayed via the function button 'Select' or by double-clicking on an object.

If you select "LOG" in the field 'Index', the runs of indexing programs already carried out are listed. From this list you can select by double-click the run for which the document statistic is to be displayed.

The content of the run table is displayed when "RUN" is selected in the field 'Index'.

PBS archive add on CML: Archive tool
Indices

MANDT	BELNR	KJAHR	ARCHIVEKEY	ZOFFSET	LINE	ARC_DATUM	USER_NAME	AWREF	AWTYP	AWORG
100	0000200260	2000	002775-001CO_ML_BEL	22.238	000001	08.04.2003	HOFFMANN		PRCHG	
100	0000200261	2000	002775-001CO_ML_BEL	22.824	000001	08.04.2003	HOFFMANN		PRCHG	
100	0000200270	2003	002775-001CO_ML_BEL	23.324	000001	08.04.2003	HOFFMANN		PRCHG	
100	0000200271	2003	002775-001CO_ML_BEL	23.943	000001	08.04.2003	HOFFMANN		PRCHG	
100	1000000000	2003	002775-001CO_ML_BEL	24.507	000001	08.04.2003	HOFFMANN	0000200270	PRCHG	2003

Number of indices: 5

Diagram 12: Contents of an object: Secondary indices

3.9. Disk Space Requirement

The *PBS archive add on CML* for Material Ledger Documents is constructed in database-independent file systems (see Chapter 3). The system administrator's task here is to reserve free memory capacity for construction of the archive.

The amount of disk space to be made available depends on the number of documents that are to be kept in the SAP archive. For each material ledger document, different secondary indices are transferred into the PBS archive. The disk space requirement for a material ledger document can be calculated after the first indexing run.

3.10. Summary of the Archive Construction

Reorganization of the database with the SAP transaction ‘SARA’ for the archiving object CO_ML_BEL.

Loading of the SAP archive files of the archiving object CO_ML_BEL into the *PBS archive add on CML* using the transaction /PBS/CMLL.

The *PBS archive add on CML* has to be activated with transaction /PBS/CMLA.

Access to the archive can be tested with the transaction /PBS/CMLS.

3.11. Definition of the Path to the PBS archive add on CML

Archiving objects

The *PBS archive add on CML* contains a indexing program that is assigned to an archiving object. Logical data paths are assigned to each archiving object via the SAP customizing. These logical data paths represent a physical data path.

The *PBS archive add on CML* contains the following archiving object:

/PBS/CML *PBS archive add on CML* – Material Ledger Documents

Maintenance via transaction SARA

The Customizing settings of the PBS archive objects can be modified via the transaction SARA.

→ SARA

→ Customizing

→ Technical Settings

4. Transactions of the PBS archive add on CML

The following table provides an overview of the transactions supplied in the PBS archive add on CML. The display transactions are explained in detail in manual part C (Application Programs/Transactions).

PBS	SAP	Transaction description
/PBS/PBS	-	Main menu of the *PBS archive add ons*
/PBS/CML	-	Menu of the *PBS archive add on CML*
/PBS/CML_ABO	-	Administration Board
/PBS/CMLL	-	Indexing program of the *PBS archive add on CML* for Material Ledger Documents
/PBS/CMLA	-	Program to activate the archive
/PBS/CMLS	-	Archiving tool for inspecting the current constructed archive
/PBS/CMLD	-	Program for deleting the archive
/PBS/CMLM	-	Program for the display of archiving runs (SARA)
/PBS/CKM3	CKM3	Display Material Ledger Data
/PBS/CKMB	CKMB	Display Material Ledger Document
/PBS/CKMS	CKMS	Search Material Ledger Documents
/PBS/CKMPCD	CKMPCD	Display Price Change Document
/PBS/CKMPCSEARCH	CKMPCSEARCH	Search Price Change Documents

Table 1: Transactions of the PBS archive add on CML